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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,885	11/20/2003	Wilhelm P. Kutsch	13959	9409

7590 03/14/2006

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EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/717,885	Applicant(s) KUTSCH ET AL.	
	Examiner Martin J. Angebrannt	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-18 and 20-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-18 and 20-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response provided by the applicant has been read and given careful consideration.

Responses to the arguments of the applicant are presented after the first rejection to which they are directed. Rejection of the previous office action, not repeated below are withdrawn based upon the amendments and arguments. The amendments to the specification are approved.

2. following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,3,6-10,20-23,25-29,31-33 and 35 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Monaghan et al. GB 2335288.

Monaghan et al. GB 2335288 teaches with respect to figure 1 a translating table (22) with a layer upon it which may be translated by the motors, which are computer controlled and a Nd:YAG laser which is split by three mirrors to allow the different azimuthal orientation shown

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in figures 3 and 4 to be achieved, which is also computer controlled. The workpiece is translated stepwise and abated areas are formed corresponding to the interference pattern formed on the spot. The workpiece is any material capable of being worked by the laser, including plastics such as polyimide (KAPTON) and iminimides, which are available as (seamless) sheets 32-42 inches. Larger sheets can be worked and this avoids the problem of the prior art with seam lines (pages 5-7. Figure 2 illustrates a similar embodiment where the cylindrical workpiece is used, rather than a sheet and it may be translated or rotated as desired. (pages 7-9) The changing of the azimuthal orientation of the fringes is specifically disclosed on page 9. The angle between the beams can also be changed to control the pitch of the fringes (page 10) Claim 6 recites the exposing patterns in different patterns and claim 7 described these as being different orientations. Varying the power is disclosed as affecting the spot size. (page 10/12-14). The discussion of forming embossing shims is disclosed and the discussion of the prior art is that the inventive process does not require wet chemistry processing as the materials is directly machined.

The claims now recited the movement of the beams relative to the polymer surface. The examiner interprets this to embrace movement of the beams and/or the polymer surface. The examiner also holds that the seamless molded or coated substrate having a polymer layer embraces an extrusion molded polymeric sheet with no underlying support (ie the polymer layer is the substrate as it is self supporting). The examiner notes that the increase in the spot size of the beams is discussed on page 10 of the reference and that the claims language reciting relative movement embraces moving either the beams or the workpiece. The relative motion between the formation of different grating spots being formed is clearly taught on pages 5-7, with the

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workpieces being seamless sheets of polymers. The claims rejected under this heading are not limited to belts or drums. The rejection stands.

6. Claims 1-4, 6-18, 20-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monaghan et al. GB 2335288 and Monaghan et al. '780.

Monaghan et al. '780 teaches with respect to figures 1 and 3, a translating table (21) with a layer (20) upon it which may be translated by the motors, which are computer controlled and a pulsed laser which is split by and the angle of two beams are each controlled by a galvanometer, to allow the different azimuthal orientation and pitches to be achieved. (4/1-306/3-8/12). These galvanometers and the laser firing are also computer controlled. The workpiece is translated stepwise and abated areas are formed corresponding to the interference pattern formed on the spot or the beams may be moved by the galvanometers. (7/65-12). The changing of the azimuthal orientation of the fringes is specifically disclosed. The angle between the beams can also be changed to control the pitch of the fringes (9/1-44).

It would have been obvious to one skilled in the art to modify Monaghan et al. GB 2335288 by beams controlling means of Monaghan et al. '780 to allow the beams to be moved, rather than the workpiece and/or to allow a wider variety of azimuthal angles to be achieved. It also would have been obvious to modify the processes of Monaghan et al. '780 by using known materials such as Kapton or other materials known to be laser ablatable to form grating patterns and/or other substrate shapes, such as cylinders to allow the formation of stamping roller, which may stamp/emboss materials continuously rather than serially.

As discussed above, Monaghan et al. GB 2335288 teaches the varying of the power to effect a change in spot size and further teaches the undesirability of seams and the use of roller substrates. The rejection stands.

7. Claims 1-4, 6-18, 20-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monaghan et al. GB 2335288 and Monaghan et al. '780, further in view of McGrew '199 and/or McGrew et al. '030.

McGrew '199 teaches a holographic master in the form of a drum or belt. These may be electroformed masters or plastic masters (2/36-67). The discussion relating to figure 1 concerns the use of a holographic master in the form of a belt, which is used as a mold for a UV curable resin (3/39-4/5). The formation of replicas which are a single color or multicolored is disclosed. (4/41-55).

McGrew et al. '030 teaches the coating of a roller with a photoresist by dipping the roller in a resist solution with the cylinder axis vertical and slowly draining the tank to produce a striation free seamless coating (4/26-36). The substrate materials for the embossing roller will be chosen on the basis of the materials to be embossed or molded and includes plastics. (7/30-42). The presence of seams is recognized to be undesirable. (7/8-18).

In addition to the basis above, the examiner cites McGrew '199 and/or McGrew et al. '030 to establish that the use of plastic masters in the form of belts or cylinders are known as well as techniques for forming seamless polymeric coatings on embossing cylinders and holds that these teachings support the position that it would have been obvious to one skilled in the art to modify Monaghan et al. GB 2335288 by means controlling means of Monaghan et al. '780 to allow the beams to be moved, rather than the workpiece and/or to allow a wider variety of

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azimuthal angles to be achieved. It also would have been obvious to modify the processes of Monaghan et al. '780 by using known materials such as Kapton or other materials known to be laser ablatable to form grating patterns and/or other substrate shapes, such as cylinders or belts to allow the formation of stamping roller, which may stamp/emboss materials continuously rather than serially as is this is known in the art as evidenced by McGrew '199 and/or McGrew et al. '030 and further that it would have been obvious to form the embossing mandrels as seamless objects based upon the teachings of the undesirability of seams in McGrew et al. '030 and Monaghan et al. GB 2335288.

8. Claims 1-4, 6-18, 20-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monaghan et al. GB 2335288 and Monaghan et al. '780 combined with McGrew '199 and/or McGrew et al. '030, further in view of Langille et al. '157, Rumsby GB 2222696, Jelly et al. '027, Chazan '966 or Andrews '785.

Langille et al. '157 teach laser ablation to form holographic patterns directly in various materials including acrylics, polycarbonate, polyimides, and epoxies. (5/31-48).

Rumsby GB 2222696 teaches the use of laser to ablate grating structures directly into polycarbonate, polyethylene terephthalate or polyimide (page 2/paragraph 3)

Jelly et al. '027 teach the laser ablation of acrylated epoxides to pattern them (3/61-64).

Chazan '966 teaches the laser ablation of PMMA, polycarbonates, PTFE, polysulfones and polyethylenes to pattern them (8/5-25).

Andrews '785 teaches the laser ablation of PMMA, polycarbonates, PTFE, polyamides, polyimides and PET to pattern them (8/5-25).

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In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the inventions resulting from the combination of Monaghan et al. GB 2335288 and Monaghan et al. '780 by patterning other polymers known to be layer ablatable, such as those disclosed by Langille et al. '157, Rumsby GB 2222696, Jelly et al. '027, Chazan '966 or Andrews '785 with a reasonable expectation of success based upon the evidenced workability of these materials by laser ablation techniques

The examiner relies upon the response above.

9. Claims 1-4,6-18,20-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monaghan et al. GB 2335288 and Monaghan et al. '780 combined with McGrew '199 and/or McGrew et al. '030, further in view Lu et al. '913.

Lu et al. '913 discuss other means for controlling the spot size of the laser in the overlapping region, which are used to form the dot matrix holograms. These include beam expanding/reducing telescope lens arrangements. (3/3-43)

In addition to the basis provided above the examiner cites Lu et al. '913, who teaches other means for varying the beam size, other than merely changing the power as taught by Monaghan et al. GB 2335288 and holds that it would have been obvious to one skilled in the art to modify the combination of Monaghan et al. GB 2335288 and Monaghan et al. '780 with McGrew '199 and/or McGrew et al. '030 by adding means to adjust the spot size as taught by Lu et al. '913 and that support for this direction comes from Monaghan et al. GB 2335288.

This is a new rejection and no arguments discuss at Lu et al. '913

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10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

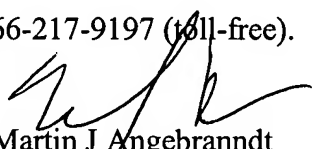
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


MARTIN ANGEBRANNT
PRIMARY EXAMINER
GROUP 1400 / 1756
3/10/06

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J Angebrannndt
Primary Examiner
Art Unit 1756

03/10/2006